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TITLE: Shopping assistance with handheld computing device

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**Abstract Text - ABTX (1):**

A system is provided in which a handheld computing device may be used to provide a user with shopping assistance services. A shopping assistance service may allow a user to obtain directory information for a shopping mall. A user may use the handheld computing device to handle shopping lists. The handheld computing device may display promotional material based on the shopping lists. The handheld computing device may be used to obtain information on products being sold in a store. Products may be purchased using wireless financial transactions. Reminders and other messages may be sent to the handheld computing device. The location of the handheld computing device may be monitored. Services may be provided to the user based on the location of the handheld computing device. The handheld computing device may communicate with communications equipment in retail establishments using a local wireless link.

US Patent No. - PN (1):  
6587835

**Brief Summary Text - BSTX (3):**

Computer systems have been developed that allow users to shop on-line for a variety of products. For example, users may order groceries over the Internet. Users may also obtain product information using the Internet and may obtain information on retail establishments. For example, users may use the Internet to obtain store hours and general information about a store. A web site for a shopping mall may allow the user to obtain information about a particular store in the mall.

**Brief Summary Text - BSTX (4):**

When the user travels to a store or other shopping establishment, the user's options are limited. Shopping malls have printed directories and maps that the user may consult to locate stores of interest. Product brochures may sometimes be obtained from store personnel. A user with a cellular phone may be able to call a store for information such as the store's hours.

**Brief Summary Text - BSTX (5):**

In some supermarkets, users may use a kiosk to place a deli order.

Department stores may have kiosks that allow users to obtain access to gift registry information for customers who have registered with the department store.

**Brief Summary Text - BSTX (6):**

Although handheld computers have been developed that allow users to keep track of appointments, play games, record voice memos, and obtain certain limited information from the Internet, such devices have not generally been able to assist the user in shopping and in performing wireless transactions.

**Brief Summary Text - BSTX (13):**

The handheld computing device may be used in financial transactions. For example, the handheld computing device may be used to wirelessly pay for products in stores. Expense reports may be automatically created using information on such wireless purchase transactions. If desired, the smart card features of a smart card attachment or accessory may be used during these transactions.

**Brief Summary Text - BSTX (19):**

The coverage of a number of local wireless transmitter/receivers may be arranged to overlap to form a wireless local area network. The location of the user may be determined by determining which local wireless transmitter/receiver the handheld computing device is in communication with. The location of the user may also be determined by using a GPS receiver associated with the handheld computing device or by using network-based techniques such as triangulation and time-of-flight measurements when the user is in communication with an appropriate wireless network.

**Brief Summary Text - BSTX (20):**

The handheld computing device may use a bar code scanner or radio-frequency identification (RFID) circuitry to identify items in stores. Categories of products and manufacturers may also be identified. Shopping lists may be created based on products that are identified. The user's current shopping list may be displayed and modified using in-home equipment, an automobile personal computer, a handheld computing device, or in-store equipment.

**Brief Summary Text - BSTX (21):**

The handheld computing device may display price comparison information for the user while the user is in a store. Product information may also be displayed by the handheld computing device when the user is in the store. Product information from multiple manufacturers may be obtained. If desired, product information may be organized in various product-categories. The handheld computing device may allow the user to search for information on products and manufacturers of interest while the user is in the store. The handheld computing device may display product information screens with interactive features.

*interactive  
features*

Electronic business cards based on images and graphic facsimiles may include digital images of the user and may have associated audio and video clips. For example, the user's voice may be recorded and associated with the user's electronic business card. An illustrative screen 150 that handheld computing device 12 may display is shown in FIG. 9. In the example of FIG. 9, electronic business card 152 contains a graphic logo 154 and personal information 156.

**Detailed Description Text - DETX (52):**

Handheld computing device 12 may be used for financial transactions. For example, the user may pay for a product in a store by wirelessly conveying information on the user's credit card, debit card, account, or other financial information to equipment in the store such as a cash register with wireless financial transaction capabilities.

**Detailed Description Text - DETX (53):**

Illustrative steps involved in using handheld computing device 12 in financial transactions are shown in FIG. 10. At step 160, handheld computing device 12 may be used to provide the user with an opportunity to provide financial information to handheld computing device 12 that is to be used in a financial transactions. For example, handheld computing device 12 may present on-screen options that allow the user to enter the digits for the user's credit card, debit card, or other account. Account information may relate to an account maintained by a store, mall, or other merchant or entity, or by a third-party service provider. Handheld computing device 12 may also allow the user to enter financial information by downloading the information from a personal computer or other device, by entering the information using dedicated keys, or by using any other suitable approach. If desired, the financial information may be stored at a remote location such as on a server associated with a service provider connected to communications network 32 of FIG. 2. Handheld computing device 12 may be provided with financial information and financial transaction capabilities using a smart card attachment or smart card circuitry that is integrated into handheld computing device 12 or using smart card protocols.

**Detailed Description Text - DETX (54):**

At step 162, the handheld computing device may be used to provide the user with an opportunity to use the financial information that was provided to handheld computing device 12 in a financial transaction. For example, handheld computing device 12 may display an on-screen option labeled "pay now" that the user can select when paying for a product or service. If the option is displayed on a touch screen, for example, the user may select the pay now option by pressing the option on the screen. Selecting the pay now option directs handheld computing device 12 to authorize the purchase transaction. Wireless signals transmitted between handheld computing device 12 and the wireless cash register or other in-store equipment allow the cash register and handheld computing device to consummate the transaction. This type of arrangement is merely illustrative. Any suitable arrangement for using handheld computing device 12 to consummate a financial transaction based on the financial information stored at step 160 may be used if desired.

Wireless communications paths that use short-range optical connections such as IR links and short-range RF links over distances from a fraction of a foot to hundreds of feet are referred to herein as "local" communications paths or links. An example of a local communications path is an IR link between handheld computing device 12 and a kiosk or cash register. Another example of a local communications path is a Bluetooth connection between handheld computing device 12 and a wireless transmitter/receiver associated with a store, merchant, mall, or other establishment or entity. Such a connection may operate at 2.4 GHz. Another example of a local communications path is a wireless path between handheld computing device 12 and a wireless local area network. Such a wireless local area network may act as a local access point to a larger communications network such as the Internet.

**Detailed Description Text - DETX (26):**

Wireless communications paths over longer distances (e.g., fractions of miles or more) are referred to herein as "remote" communications paths or links. Examples of remote communications paths include cellular telephone links to terrestrial cellular base stations, satellite links (e.g., to communications satellites that provide Internet access, wireless telephone services, or data services or the like), links to FM data services that are distributed from terrestrial broadcast stations, etc.

**Detailed Description Text - DETX (30):**

Shopping list information may be provided to a service provider or merchant at suitable predefined intervals (e.g., once every 10 minutes, once per day, etc.). Information for the list may also be provided to a service provider or merchant a certain period of time after each time the list is last modified (e.g., 10 minutes after each time the list is last modified). List information may also be provided to the service provider when requested by the service provider or the user. The service provider may store the information until requested by the user (e.g., when shopping) or may provide the information to the store or other establishment in advance for local retrieval by the user when shopping. A combination of these approaches or any other suitable approach may be used if desired. These are merely illustrative examples, any suitable arrangement may be used to provide the user and other parties with an opportunity to create shopping lists at step 58.

**Detailed Description Text - DETX (31):**

If desired, the user may designate certain items for home delivery. In this capacity, the shopping list service serves as an on-line merchant. Other shopping list information may be used to assist the user in locating products of interest during in-store shopping.

**Detailed Description Text - DETX (32):**

Regardless of whether the shopping list items are ordered on-line, are used for an order to be picked up by the user at a merchant, or are used to assist the user during in-store shopping, the user and other parties may be provided with an opportunity to make a financial commitment towards the purchase of a

product or service at step 60. The financial commitment may be, for example, an agreement by the user that the user's credit card account or other financial account will be charged if suitable products are found matching the user's requests.

Detailed Description Text - DETX (33):

Manufacturers, stores, and other entities may respond to such a financial commitment by providing the user with a discount or other financial benefit or the like at step 62. Such benefits may be provided, for example, in the form of an electronic discount on the purchase price for an item that is awarded during the purchase transaction at step 62. The user may also be provided with a benefit by having multiple sellers compete against one another for the lowest selling price. A computer associated with the service provider may match the user to the seller with the lowest price. During shopping, information may be displayed to the user with a handheld computing device or the like based on which items are in the user's shopping list.

Detailed Description Text - DETX (35):

Storage 72 may include random-access memory (RAM) 74, read-only memory (ROM), and any other suitable volatile or non-volatile memory or storage device 78.

Detailed Description Text - DETX (37):

Communications and I/O 88 may include keys or other input interface devices 90 such as a touch pad, track ball, or other pointing device, a keypad a keyboard, dedicated buttons, etc. Small keys or buttons may be used to ensure that handheld computing device is relatively small and lightweight. A port 92 may be used to connect handheld computing device 12 to an external computer or other electronic device. Port 92 may be any suitable port or ports, such as a FireWire port (IEEE 1394), a universal serial bus (USB) port, etc. An IR port may be supported using IR transmitter/receiver 94. Wireless communications circuitry 96 may include one or more antennas, transmitters, tunable transmitters, receivers, and tunable receivers. Wireless communications circuitry 96 may support remote wireless communications (e.g., cellular telephone communications, cellular modem communications to a terrestrial base station, satellite communications, etc.) and local wireless communications (e.g., a Bluetooth RF connection or other RF connection or an IR connection to a nearby wireless device).

Detailed Description Text - DETX (39):

If desired, a Bluetooth module or other wireless communications circuitry 104 may be added as an accessory or expansion module. An expansion module may be provided that provides video capabilities to handheld computing device 12 (e.g., MPEG-2 or MPEG-4 capabilities). If handheld computing device is already configured to include such capabilities, an expansion module may be provided that enhances the video capabilities of handheld computing device 12. Media drives 102 such as a CD drive, a floppy drive, a PC card reader, a memory card reader, a DVD drive, or any other suitable drives may be added to or attached

*video  
Bluetooth*  
*} Storage device*

to handheld computing device 12. Other accessories and attachments 106 may be used if desired. Such other accessories and attachments may include, for example, a scanner, a printer, etc.

3

Detailed Description Text - DETX (40):

Other components 108 that may be included in handheld computing device 12 include clock 110. Clock 110 may be implemented as one or more clock circuits or as a software timing routine or using a combination of such arrangements. A battery 112 may be used to provide power. A microphone and speaker 114 may be used to support audio functions. Audio tones and other alert signals may be presented to the user through the speaker. The microphone may be used in voice communications, voice memos, etc. Vibration unit 116 may be used to vibrate handheld computing unit 12 when it is desired to alert the user by vibrations (e.g., without disturbing people in the vicinity of handheld computing unit 12 by using an audible alert). Vibration unit 116 may be used to transmit vibrations using different codes. For example, one vibration may signify an incoming e-mail message, whereas two vibrations may be used to alert the user to a calendar event. A security device that tracks whether handheld computing device 12 has been removed from a store or other establishment may be provided if desired.

amp

Detailed Description Text - DETX (43):

The user may provide inputs using user input interface 134. User input interface 134 may be, for example, an on-screen keyboard, a keyboard, a touch screen, a touch pad, keys or buttons, a microphone (e.g., for voice commands), a pointing device (e.g., a trackball or mouse, etc.), etc. Communications circuitry and accessories 136 may include antennas, transmitter/receivers, and other communications circuitry and may be used to handle wired and wireless communications tasks. Wireless communications circuitry may be provided for local communications functions, remote communications functions, or both local and remote communications functions. Communications and accessories 136 may include IR communications circuitry for local optical communications. Communications and accessories 136 may also include a bar code scanner for scanning bar code labels on items in stores and the like or an RFID unit for identifying items wirelessly. Other features, such as printing, scanning, and the like may be provided by other suitable communications circuitry and accessories.

Detailed Description Text - DETX (47):

If desired, handheld computing device 12 may be used for calendar and voice memo functions. The calendar function may be provided by using handheld computing device 12 to display on-screen options that allow the user to make entries in a calendar. The voice memo functions may be used to record voice memos. Voice memos may be recorded using analog-to-digital circuitry to digitize the user's voice. The digitized signals may be stored in storage 72 (FIG. 4).

storing  
in mobile  
entry

Detailed Description Text - DETX (50):

Drawing Description Text - DRTX (20):

FIG. 18 is a diagram showing how global positioning system satellites may be used to determine the location of a handheld computing device in accordance with the present invention.

Drawing Description Text - DRTX (27):

FIG. 25 is a flow chart of illustrative steps involved in ordering products that are identified in a store using a handheld computing device in accordance with the present invention.

Drawing Description Text - DRTX (29):

FIG. 27 shows an illustrative screen showing information that may be provided when an in-store product is scanned in accordance with the present invention.

Drawing Description Text - DRTX (46):

FIG. 44 shows an illustrative information screen for a store in a mall that a shopping assistance service may display in accordance with the present invention.

Drawing Description Text - DRTX (50):

FIG. 48 is a flow chart of illustrative steps involved in using a shopping assistance service to search for desired products, services, and stores in accordance with the present invention.

Drawing Description Text - DRTX (102):

FIG. 100 shows a screen containing an illustrative main menu that may be displayed by a department store shopping assistance service in accordance with the present invention.

Drawing Description Text - DRTX (117):

FIG. 115 is a flow chart of illustrative steps involved in allowing users to use handheld computing devices to place orders at stores that are to be picked up in accordance with the present invention.

Drawing Description Text - DRTX (120):

FIG. 118 shows an illustrative screen that the handheld computing device may display following a wireless transaction performed from within an automobile in accordance with the present invention.

} showing data

Detailed Description Text - DETX (2):

An illustrative electronic commerce system 10 is shown in FIG. 1. Handheld

computer 38. A user may print out the list from the kiosk.

Detailed Description Text - DETX (11):

The user may also access the shopping list by downloading the shopping list in the store or other establishment. The shopping list may be downloaded using a physical connection or a wireless communications path.

Detailed Description Text - DETX (13):

Platforms such as in-home electronic device 28, handheld computing device 12, computer 42, and automobile personal computer 44 may support remote interactions with stores, malls, and other establishments and with one or more service providers 46. Service providers may be used to provide shopping assistance services for in-store shoppers. Service providers may also be used to supply content to various platforms. Services such as product and service ordering may be supported by service providers. In addition, shopping list services may be supported by service providers.

Detailed Description Text - DETX (14):

As an example, a shopping list creation service that is supported by a service provider may allow a user to add items to a shopping list maintained at a remote server (e.g., a server located at service provider 46 or associated with service provider 46). When the user is shopping in a store or other establishment 34, the user may access the shopping list from service provider 46.

Detailed Description Text - DETX (15):

If desired, service provider 46 may support multiple services. For example, service provider 46 may support a product ordering service (e.g., on-line grocery deliveries or grocery orders processed for in-store pickup) and a shopping assistance service (e.g., a shopping list service or the like).

Detailed Description Text - DETX (16):

Service provider 46 may communicate with manufacturers such as manufacturer 48. Manufacturers may offer coupons, discounts, or other benefits to users. It may or may not be readily apparent to the user that the manufacturer is providing a benefit. For example, a service provider may provide a user with an opportunity to make a financial commitment towards making a shopping purchase. The user may, for example, select a certain grocery item that the user desires to purchase. The user may offer to pay a certain price for the item or may make another suitable financial commitment toward purchasing the item. A given manufacturer may subsidize the user's purchase by offering a discount provided that the user purchases the item from that given manufacturer. Such discounts may be provided by the service provider, the store, mall, or other establishment, or any other suitable entity.

Detailed Description Text - DETX (25):



computing device 12 may interact with various entities using wireless and wired communications. Handheld computing device 12 may be a handheld computer or any other suitable handheld computing device. As an example, a cellular telephone with computing capabilities may be used to perform some of the functions of handheld computing device 12. For many functions, handheld computers may be preferable to cellular telephones. Handheld computers generally have larger screens than cellular telephones and have superior computing capabilities. Handheld computers may also more readily accept attachments that allow their capabilities to be extended. Handheld computers and handheld computing devices are examples of mobile electronic devices. In some instances, mobile electronic devices such as shopping-cart-mounted electronic devices or the like may be used to perform the functions of handheld computing devices such as handheld computers or the like. The features of the present invention are described primarily in connection with handheld computing devices for clarity.

**Detailed Description Text - DETX (3):**

Handheld computing device 12 may be used to interact with restaurant 14, department store 16, shopping mall 18, supermarket 20, and other merchants such as merchant 22. Handheld computing device 12 may be used to place orders and to obtain information on the products and services offered by such merchants. Handheld computing device 12 may also be used to display promotional materials provided by these merchants. A service provider such as service provider 24 may be used to provide information, process orders, etc. Service provider 24 may be associated with one or more merchants or may operate independently.

**Detailed Description Text - DETX (5):**

In-home electronic device 28 may be used in requesting information, creating shopping lists, and placing orders for products and services. For example, in-home electronic device 28 may also be used to generate a grocery list of items to be picked up by the user in a brick-and-mortar store. The shopping list may be transmitted from the in-home electronic device to handheld computing device 12 for use in assisting the user when shopping in the store.

**Detailed Description Text - DETX (9):**

Grocery items are merely an illustrative example of the type of products that may be ordered using in-home electronic device. In-home electronic device 28 may be used to create on-line orders for any suitable products and services if desired. For example, in-home electronic device may be used to create orders for department store items, electronics, appliances, gifts, etc.

**Detailed Description Text - DETX (10):**

The user may also use in-home electronic device 28 to create shopping lists. For example, family members in the user's household may occasionally think of grocery items or other items that need to be purchased. These items may be added to a shopping list using in-home electronic device 28. The information from the shopping list may be provided to the user when shopping in a store, mall, or other establishment 34. As an example, the shopping list information may be provided to a kiosk or other retailer equipment 36 that includes a

Detailed Description Text - DETX (56):

The wireless financial transaction of step 162 may be performed with any suitable hardware or entity. For example, wireless payments may be made with kiosks, vending machines, ticket machines, parking garage gates, toll collection facilities, cash registers and other equipment associated with stores, malls, amusement parks, and other entities, ticket collection equipment, mass transit turnstiles and other entrance and exit equipment, parking meters, gas pumps or gas station equipment, fast food restaurants, drive through facilities, banks or any other suitable entity or equipment. Financial transactions may involve either debiting or crediting the user.

Detailed Description Text - DETX (57):

Any suitable wireless communications link may be used to consummate the wireless transaction of step 162. For example, a local IR or RF communications path may be used. Wireless financial transactions may also be performed over remote wireless links. Wired links may be used if desired. For example, the handheld computing device 12 may be connected to the other equipment being used in the transaction using a cable or by placing the handheld computing device 12 in a cradle. The cradle may be adapted to receive the handheld computing device and to form an electrical connection with the handheld computing device. The electrical connection allows the handheld computing device 12 to communicate with the other equipment during the financial transaction.

Detailed Description Text - DETX (59):

When handheld computing device 12 is used in wireless financial transactions, handheld computing device 12 may retain information on each of the financial transactions. If desired, this financial information may be retained on a remote server or the like. Regardless of where the financial transaction information is stored, the financial transaction information may be used in other applications. For example, the financial transaction information may be provided to an expense report application, a tax application, a money management application or banking application, a general-purpose financial records application, etc. The financial transaction information may be provided to applications such as these using any suitable technique, such as by transferring the information to the application or informing the application where the financial transaction information is stored (e.g., on handheld computing device 12 or on a remote server, etc.).

store  
info -  
in mobile  
or third  
Party

Detailed Description Text - DETX (60):

An illustrative screen that handheld computing device 12 may display for the user when a financial transaction has been consummated is shown in FIG. 11. Handheld computing device 12 may display information on the financial transaction such as information 166. Handheld computing device 12 may also display on-screen options such as options 168 and 170 that allow the user to save the financial transaction information (e.g., information on the \$156.07 purchase in the example of FIG. 11) to either an expense report application or a financial planning application. These are merely illustrative examples of

store  
transac.  
info  
group

example, a user may download a mall directory or the other directory from kiosk 216. Kiosk 216 may also be used as a vending machine to supply products or services to the user. The user may use local wireless communications between handheld computing device 12 and kiosk 216 to consummate a financial transaction for such products or services.

Detailed Description Text - DETX (78):

A service provider such as service provider 222 may use a computer such as computer 224 to provide services to the user, merchants, and kiosk. For example, the user may access personal information such as a personal shopping list stored on computer 224 using local wireless transmitter/receivers 206 and communications network 226. Computer 224 may be a remote server to which the local access point formed using local wireless transmitter/receivers 206 may be connected over a communications network such as the Internet or the like.

*Remote  
server of  
CP- Thine  
Party*

Detailed Description Text - DETX (79):

Computer 218 at kiosk 216 may access a content database on computer 224 using network 226. Merchants 210 may access a database of wireless advertisements stored on computer 224. Merchant 212 may access computer 224 to retrieve audio files and videos ordered by a user through local wireless transmitter/receiver 214. These are merely illustrative examples of the use of a network of local wireless transmitter/receivers. Any suitable arrangement of such local wireless transmitter/receivers may be used if desired.

*Retrieving  
stored  
data*

Detailed Description Text - DETX (80):

As shown in FIG. 16, local wireless transmitter/receivers may have ranges that are localized near certain stores. For example, transmitter/receiver 226 is in the proximity of store 228. The range of transmitter/receiver 226 is shown by circle 230. Transmitter/receiver 226 may or may not be associated with or controlled exclusively by store 228. Transmitter/receiver 232 is located in store 234. The range of transmitter/receiver 232 is shown by circle 236. Transmitter/receiver 232 may be associated with store 234 and may be controlled primarily by or exclusively by store 234. The ranges of both transmitter/receivers 226 and 232 may overlap substantially with corridor 238, so that users with handheld computing devices 12 in the corridor 238 may interact with stores 228 and 234 or other entities using local wireless communications.

*hand-held  
devices  
interact*

Detailed Description Text - DETX (81):

In the arrangement of FIG. 17, the range or footprint 240 of each local wireless transmitter/receiver covers a separate area or aisle 242 of store 244.

Detailed Description Text - DETX (82):

In arrangements such as those shown in FIGS. 15, 16, and 17, the range of each local wireless transmitter/receiver is limited. Accordingly, when a handheld computing device 12 is communicating with a particular local wireless transmitter/receiver, the location of the handheld computing device 12 can be

determined. In particular, with an arrangement such as that of FIG. 16, it can be determined when the user is within the proximity of certain stores. With an arrangement such as that of FIG. 17, the particular aisle in which the user is located may be identified.

Detailed Description Text - DETX (83):

If desired, the location of handheld computing device 12 and therefore the user may be determined using global positioning system (GPS) satellites, as shown in FIG. 18. Handheld computing device 12 may receive satellite signals from GPS satellites 246. By analyzing these signals with GPS receiver 248, handheld computing device 12 can determine the location of the user. The resolution of current GPS systems is purposefully limited by the government. If a higher resolution is desired, a differential GPS (DGPS) system may be used. In DGPS systems, the known (e.g., surveyed) position of a base station such as base station 250 may be used as a reference point. By comparing the known position of base station 250 that is indicated by a GPS receiver at station 250, the error of the GPS signal in the proximity of base station 250 can be determined. If a handheld computing device 12 is relatively close to such a base station (e.g., within a number of miles), the handheld computing device's GPS location may be corrected by the same amount that was determined to be necessary to correct the position of base station 250.

Detailed Description Text - DETX (84):

If desired, handheld computing device 12 and base station 250 may be in wireless communications (e.g., over a remote wireless link 252 using antenna 254). The DGPS correction to the position of handheld computing device 12 may be made at the handheld computing device 12 (by supplying the needed correction data to the handheld computing device 12 from base station 250), at base station 250 (e.g., by providing the handheld computing device's raw GPS position to base station 250), or may be performed elsewhere (e.g., by providing an appropriate facility with the error correction data from base station 250 over a communications network and by providing the GPS position data of the handheld computing device using wireless communications and a communications network path).

Detailed Description Text - DETX (85):

Other techniques may be used for determining the location of handheld computing device 12 if desired. For example, a rough position of handheld computing device 12 may be obtained by determining which terrestrial antennas (or more broadly which satellites) are receiving communications from handheld computing device 12. An approach of this type that uses terrestrial antennas in communication with handheld computing device 12 over remote wireless links may be sufficiently accurate to place handheld computing device in a particular city or portion of a city or the like. More precise location information may be obtained using time-of-flight and triangulation techniques. Such techniques may involve the use of multiple terrestrial antennas.

Detailed Description Text - DETX (88):

Illustrative steps involved in using the arrangement of FIG. 19 to provide access to a remote server or the like through local wireless connections are shown in FIG. 20. At step 268, the user may be allowed to establish a local wireless communications link between handheld computing device 12 and local communications equipment 258. For example, handheld computing device 12 and local communications equipment 258 may be used to form a local RF Bluetooth link. At step 270, communications equipment 258 is used to form a communications link (e.g., a wired or remote wireless communications link) with service provider 264 so that handheld computing device 12 may communicate with service provider 264.

**Detailed Description Text - DETX (89):**

Shopping lists may be created using a home or office computer such as computer 272 of FIG. 21 or other in-home electronic device. The shopping list may be stored locally on computer 272 or may be stored on a remote server such as server 274 at store 276 or server 278 using communications network 280. On-line orders for products and services may be made by interacting with order fulfillment facility 282 (e.g., over an Internet link or the like using a web browser implemented on computer 272).

**Detailed Description Text - DETX (90):**

The shopping list may be accessed in store 276 by handheld computing device 12. For example, if the shopping list is maintained on server 274 or may be obtained from a remote location such as server 278 by server 274, handheld computing device 12 may obtain the shopping list from server 274 over a local wired or wireless link. If the shopping list is maintained at server 278, handheld computing device 12 may also access the list using a remote wireless link.

*Third Party*

**Detailed Description Text - DETX (93):**

A bar code scanner or RFID unit 284 may be used to wirelessly identify items with bar codes such as item 286. This allows handheld computing device 12 to identify items in stores, in restaurants, in malls, at home, at the office, or at any other suitable location. The user or family members in the user's household or others may use the identification feature of handheld computing device 12 to create wish lists or to add to or modify the shopping list of the user. For example, a child may use handheld computing device 12 to wirelessly identify an item in a clothing store. The identity of the item may be determined by bar code scanner or RFID unit 284. This information may be added to the user's shopping list or may be used to create a wish list for the child.

**Detailed Description Text - DETX (94):**

The updated and modified shopping list information and wish list information that is generated by wirelessly identifying products may be maintained at server 274, server 278, computer 272, or handheld computing device 12, or at any other suitable location. If, for example, the list is maintained at server 278, the child's or other party's addition to the shopping list may be provided to server 278 by using handheld computing device 12 to transmit this

information to server 278 via a local wireless link with in-store equipment such as server 274 and communications network 280 or by using handheld computing device 12 to transmit the information to server 278 using a remote wireless link.

Detailed Description Text - DETX (96):

If the shopping list is stored on a server 274, handheld computing device 12 may communicate the information on the addition or modification to the shopping list that is generated by wirelessly identifying item 286 to server 274 using a local or remote communications link. For example, handheld computing device 12 may allow the user to download the information on the wirelessly identified item to server 274 over an IR link or local wireless RF link in store 276. If the shopping list is stored locally on handheld computing device 12, information on the identified item may be added directly to the shopping list. If the shopping list is stored on computer 272, handheld computing device 12 may be used to download the information on the identified item to computer 272 over an IR link or local or remote wireless RF link. Once the shopping list has been updated, the user may retrieve the shopping list with handheld computing device 12 or other equipment for use during shopping. These are merely illustrative examples, the updated and modified shopping list information gathered by bar code scanner or RFID unit 284 and handheld computing device 12 may be added to the shopping list using any suitable communications paths if desired.

Detailed Description Text - DETX (99):

Handheld computing device 12 may use a database that correlates bar codes or RFID codes with different items. This allows handheld computing device 12 to display information in region 290 that includes a brief description of the identified item. The database may be maintained at a merchant or service provider or any other suitable establishment or entity. For example, the database may be maintained at server 274 or server 278 of FIG. 21. The database may also be stored on handheld computing device 12.

Detailed Description Text - DETX (100):

If, for example, the database is stored at server 278, bar code or RFID information for a identified item may be provided to server 278 by using handheld computing device 12 to transmit this information to server 278 via a local wireless link established with local communications equipment or in-store equipment such as server 274 and communications network 280 or by using handheld computing device 12 to transmit the information to server 278 using a remote wireless link. Server 278 may use the bar code or RFID information to retrieve a corresponding item description. The item description may be passed back to handheld computing device 12 using a remote wireless link or via communications network 280 and local communications equipment or in-store equipment that is in communication with handheld computing device 12 over a local wireless link.

Detailed Description Text - DETX (101):

If the database is stored at a closer server such as server 274, handheld computing device 12 may pass the bar code or RFID information to server 274 using a local or remote communications link. For example, handheld computing device 12 may be used to download the bar code or RFID information for the identified item to server 274 over an IR link or local wireless RF link in store 276. Server 274 may use this information to retrieve a corresponding item description. The item description may be passed back to handheld computing device 12 over a local wireless link. If the database is maintained by or accessed by computer 272, handheld computing device 12 may be used to download the bar code or RFID information on the wirelessly identified item to computer 272 over an IR link or a local or remote wireless RF link. Computer 272 may use the information to retrieve a corresponding item description. The item description may be passed back to handheld computing device over a local wireless link or a local wired link. These are merely illustrative examples, the bar code or RFID information may be converted into item description information using any suitable arrangement.

**Detailed Description Text - DETX (103):**

Handheld computing device 12 may access additional information and services related to the scanned or otherwise wirelessly identified item using any suitable communications path. For example, a database of information on a server or other computer may be accessed using a wired link, a local IR link, a local RF wireless link, physical media swapping (e.g., by transferring a removable storage media between the handheld computing device and equipment associated with the computer), using a remote wireless link, etc.

**Detailed Description Text - DETX (104):**

With an arrangement such as that of FIG. 2, a handheld computing device 12 that has obtained information on an item in a store or other facility 34 (e.g., by scanning the item with a bar code, by using an RFID unit, by receiving input from the user through a touch screen, or by receiving information over a local wireless link, etc.) may obtain additional information and services related to the item from computer 28 over link 52. Information and services may be obtained from manufacturer 48, service provider 46, order fulfillment facility 30, and other such entities over communications network 32. Handheld computing device 12 may be connected to communications network 32 by either a local wireless link, a remote wireless link, a wired connection (in store 34, the home or office, etc.), by a media swapping arrangement (e.g., by transferring a memory card between handheld computing device 12 and equipment in communication with network 32), etc.

**Detailed Description Text - DETX (105):**

If the user selects an option such as option 296 of FIG. 22, handheld computing device 12 may display a screen such as screen 300 of FIG. 23. Screen 300 may contain information such as price information, store information, and product description information in information region 302. An on-screen option 304 may be provided that allows the user to use the handheld computing device to place an electronic order for the product. This allows the brick-and-mortar shopper to place on-line products for items of interest (e.g., items that have

been identified by bar code scanning or RFID identification techniques in a store. If the user selects option 304, the user may be provided with on-screen options that allow the user to order the product and other products.

**Detailed Description Text - DETX (106):**

For example, if the user is in a Gap clothing store and the user scans or uses RFID to identify a sweater, information on the price of the sweater and description of the sweater may be displayed as shown in FIG. 23. If the user selects order now option 304, the user may be connected to a Gap web site or other such on-line site that allows the user to order the sweater and any other Gap products offered for sale at the site. The on-line site may be a publically accessible web site that may be reached from any computer connected to the Internet or may be a site that is only accessible to users with handheld computing devices.

**Detailed Description Text - DETX (107):**

If desired, the on-line site may only be available to in-store shoppers. As an example, the site may be accessed using a local wireless link. Because it is known that users accessing the site through this communications path are in the immediate vicinity of the store, the site may provide the user with different services (e.g., prices, shipping and service options, product offerings, etc.) than users who access the Gap's regular Internet web site. This type of segregation technique may be used regardless of whether the user accesses the shopping service using a local communications path or a remote communications path. For example, users who access the site using a remote wireless communications link may be identified based on location information (e.g., GPS location information, etc.).

**Detailed Description Text - DETX (108):**

When a product has been identified to handheld computing device 12 in a store or other establishment, the user need not order that product immediately. Rather, the user may save the identified information for use during a later purchasing transaction (e.g., through a web site). An illustrative web site ordering arrangement that may be used to provide the user with an opportunity to order items previously identified in a store using handheld computing device 12 (e.g., by scanning or RFID identification) is shown in FIG. 24. Screens such as screen 306 may be displayed using a web browser implemented on the user's home or office personal computer or other suitable device. Screen 306 may contain information 308 on each item that was identified in the store. Some of the items in the list on screen 306 may have been added to the list by the user from the web site or other on-line shopping service, rather than through the handheld computing device 12. If desired, both types of items may be listed on screen 306. Options such as option 310 may be provided to allow the user to add an item of interest to the user's shopping cart. This is only illustrative. Any suitable web-based ordering scheme may be used to order the items shown in screen 306 if desired.

**Detailed Description Text - DETX (109):**



Illustrative steps involved in ordering products that are identified in a store using handheld computing device 12 are shown in FIG. 25. At step 312, the user may be provided with an in-store opportunity to add an item to the user's shopping list. The item may be added to the list by bar code scanning, by using RFID identification, by entry of product information into handheld computing device 12 using on-screen options, by receiving product information over an IR link (e.g., from a kiosk or terminal associated with the store or adjacent to the product), by using a memory card to pass information to handheld computing device 12, by a remote wireless link, by a wired link, or using any other suitable technique.

**Detailed Description Text - DETX (110):**

At step 314, the user may be provided with an opportunity to purchase the item and other items. As an example, the user may purchase the item from an electronic service maintained by the merchant and accessed over a local IR or RF wireless link. The user may also purchase the item from a web site or other electronic service. Such a site or service may be accessed by handheld computing device 12 over a remote wireless link (e.g., using a cellular modem link to the Internet). The site or service may also be accessed over the Internet from a personal computer or other electronic device. These are merely examples, any suitable technique may be used to allow the user to use handheld computing device or other equipment to order the item. Regardless of whether the user orders the item using a handheld computing device or whether the user orders the item using a personal computer or other electronic device, the order may be fulfilled at step 316 (e.g., by an order fulfillment facility to which the order has been transmitted over an electronic link). The order fulfillment facility may be associated with a central warehouse that serves customers over a wide geographic region or may be a facility that is associated exclusively or primarily with the store in which the item was identified.

**Detailed Description Text - DETX (112):**

At step 318, the user may be provided with an opportunity to identify an item, category of item, manufacturer in a store or other establishment. An item, category of item, or manufacturer may be identified in a store or other establishment by bar code scanning, by RFID identification techniques, by entry of product information into handheld computing device 12 using on-screen options, by receiving product information over an IR link (e.g., from a kiosk or terminal associated with the store or adjacent to the product), by using a memory card to pass information to handheld computing device 12, by a remote wireless link, by a wired link, by selecting from on-screen options that list products by categories or manufacturers, etc., or by using any other suitable technique. If desired, the item, category of item, manufacturer, etc. may be identified using in-store computer equipment or the like. For example, personnel in the store may provide information identifying an item, category of item, or manufacturer into an in-store computer.

**Detailed Description Text - DETX (113):**

At step 320, the user may be provided with an opportunity to use handheld computing device 12 or other equipment to obtain information and access

services related to an item, category of items, manufacturer, etc. For example, handheld computing device 12 may be used to provide the user with information and other services while the user is in the store or establishment or in the vicinity of the store or establishment. Handheld computing device 12 may also be used to provide the user with information and other services after the user has left the store. In-store equipment and home or office equipment or the like may be used to provide the user with information and services related to the item, category of item, manufacturer, etc.

**Detailed Description Text - DETX (114):**

Information and services may be provided to the user from an in-store computer, a server or other computer associated with the store or other establishment, a remote server at a service provider or other entity, or using any other suitable arrangement. Product ordering services may be provided using equipment in the store or using a remote order fulfillment facility (e.g., for orders to be delivered). Any suitable communications paths may be used to provide information and services to handheld computing device 12. For example, while handheld computing device 12 is in a store, a communications link may be established between handheld computing device 12 and the store over a local wireless IR or RF link, a remote wireless link, a wired connection, etc. Information and services may also be provided to the user at handheld computing device 12 using transferable storage media (e.g., memory cards or the like). These are merely illustrative examples. Any of the communications techniques that have been described previously may be used to provide information and services to the user at step 320 if desired.

**Detailed Description Text - DETX (115):**

An illustrative screen 322 that may be displayed by handheld computing device 12 when an item in a store has been identified is shown in FIG. 27. Screen 322 may contain information such as model number information 324 and product description information 326. On-screen options may be provided that allow the user to obtain information and to access services.

**Detailed Description Text - DETX (116):**

For example, option 328 may be provided that allows the user to request a brochure on the identified product. If the user selects option 328, the user's brochure request may be passed to an in-store computer or an appropriate service provider. Brochures may be delivered to the user's home in physical form or may be delivered to the user's home or handheld computing device 12 electronically. For example, an electronic brochure may be provided to handheld computing device 12 using a local wireless link in the store.

**Detailed Description Text - DETX (117):**

Option 330 may be used to allow the user to obtain information on warranties. If the user selects option 330, handheld computing device 12 may be used to provide the user with information on the warranties offered by various manufacturers or information on the store warranties offered by the store. This information may be supplied to handheld computing device 12 from a

computer associated with the store over a local wireless link or using any other suitable arrangement. If desired, handheld computing equipment 12 may be used to display options that allow the user to electronically purchase an extended warranty from the store or the like.

**Detailed Description Text - DETX (118):**

The user may desire to finance the purchase of the item. Option 223 may be used to allow the user to obtain information on financing (e.g., from a computer associated with the store over a remote or local wireless link or a wired link). If the user selects option 332, handheld computing device 12 may be used to display information for the user on various financing packages available from manufacturers, banks, and the store. If desired, only information on the store's financial packages may be made available to the user.

**Detailed Description Text - DETX (119):**

Option 334 may be used to allow the user to check the store's current stock. If the user selects option 334, the store's computer database may be checked to determine whether the desired item is currently in stock. Information on whether the item is in stock may be provided to handheld computing device 12 over a local or remote wireless link, a wired link, or other suitable path. The information may be displayed for the user by handheld computing device 12.

**Detailed Description Text - DETX (120):**

Option 336 may be used to allow the user to view information on reviews on the desired item. For example, reviews from the press or from the store may be provided to handheld computing device 12 from a computer associated with the store or other suitable equipment (e.g., over a local or remote wireless link, a wired link, or other suitable path) and displayed for the user.

**Detailed Description Text - DETX (121):**

Option 338 may be used to allow the user to view customer comments and the like. The user may also be provided with an opportunity to add comments. The customer comments may be stored on the store's computer or may be stored remotely (e.g., on a remote server associated with a service provider or the like). The customer comments may be provided to handheld computing device 12 from the computer associated with the store or the remote server (e.g., over a local or remote wireless link, a wired link, or other suitable path) and displayed for the user. If the user adds comments, the comments may be transmitted from handheld computing device 12 to the store's computer or the remote server.

**Detailed Description Text - DETX (122):**

Options 340 may be used to allow the user to view video related to the desired item. For example, the store or a manufacturer or a service provider may maintain a library of video clips associated with various products, categories of products, and manufacturers, etc. If a video is available for the

desired product or category of product or the manufacturer of the product, the video may be provided to handheld computing device 12 and displayed for the user. The video may be displayed for the user while the user is in the store, to assist the user in determining whether or not to purchase the desired item.

Detailed Description Text - DETX (123):

Video may be distributed to handheld computing device 12 using any suitable communications path. For example, video from the store may be distributed from equipment in the store (e.g., a computer) over a local IR or RF wireless link, a remote wireless link, a wired link, or any other suitable link. Video from a remote server may similarly be distributed over a local IR or RF wireless link (e.g., through a local transmitter/receiver associated with the store or other local establishment), a remote wireless link, a wired link, or any other suitable link. The videos may be produced by the store, by independent product reviewers, by the manufacturers, or by any other suitable entities. Videos may be distributed in real time or may be downloaded as video clip files that may be played back by handheld computing device 12 after the file has been downloaded or after a sufficient portion of the downloading process has been completed.

Detailed Description Text - DETX (126):

Screen 346 may also include information 354 on various brick-and-mortar retail establishments. If the user selects one of directions options 356, handheld computing device 12 may obtain directions (e.g., from a remote server) and may display these directions for the user. If the user selects one of the call now options 358, handheld computing device 12 may establish a telephone link with the associated brick-and-mortar store, so that the user may obtain information about that store from personnel at the store who answer the telephone or from an automated telephone answering system.

Detailed Description Text - DETX (127):

When the user is in the vicinity of a store, the user may obtain product information and access services related to the products and services of the store and the manufacturers associated with these products and services. Handheld computing device 12 may be used to obtain such product information from a local computer associated with the store or from a remote computer (e.g., a remote server associated with the store, a manufacturer, or service provider, etc.) A local wireless link (e.g., a local wireless link with the computer associated with the store or with a local access point in the vicinity of the store) may be used to provide the requested information wirelessly to handheld computing device 12.

Detailed Description Text - DETX (133):

If the user selects an option such as the view info option 386a of FIG. 32, handheld computing device 12 may display a screen such as screen 398 of FIG. 34. Screen 398 may contain information 400 identifying the product of interest and information 402 indicating whether the store has the product in stock. Information on whether the item is in stock may be obtained from any computer

associated with the store that has access to current inventory information. This information may be stored on a local computer or a remote server. Video such as promotional video on the product or the manufacturer's line of products or any other suitable subject may be displayed in video region 404. Product specifications may be displayed in region 406.

**Detailed Description Text - DETX (134):**

Order now option may allow the user to order the product in the store. The product may be ordered from the store or from a service provider. If the product is ordered from the store, the user may be provided with an on-screen option that allows the user to decide whether to take the product home from the store or to have the product delivered. If the product is ordered from a remote service provider or the like, the product may be delivered to the home. If the user selects request brochure option 410, a brochure may be provided to the user.

**Detailed Description Text - DETX (135):**

Handheld computing device 12 may display an option such as save information option 412 that allows the user to retain the promotional information displayed in screen 398 for later retrieval (e.g., for when the user is no longer in communication with the store).

**Detailed Description Text - DETX (137):**

It may be desirable to provide the user with easy access to the features of a shopping assistance service. Illustrative steps involved in providing one suitable type of access to a shopping assistance service are shown in FIG. 35. Initially, the user may travel to a store or other retail establishment. At step 416, a local communications link may be automatically established between local communications equipment in the vicinity of the retail establishment and the user's handheld computing device 12. For example, a local wireless connection may be established with a local transmitter/receiver associated with the store or a local transmitter/receiver associated with a local wireless network to which the store is connected, etc. Step 416 may be performed without intervention by the user.

**Detailed Description Text - DETX (138):**

At step 418, handheld computing device 12 may automatically display an on-screen option (e.g., an icon or other indicator) for the user that indicates that a shopping assistance service is available. The icon may, for example, be an icon of the store's name or logo. If the user is interested in using the features of the shopping assistance service (e.g., to obtain information and access services related to the products offered by the store), the user may select the on-screen option. This directs handheld computing device 420 to invoke the shopping assistance application. As an example, invoking the shopping assistance application may direct handheld computing device 12 to display a screen such as screen 360 of FIG. 29.

**Detailed Description Text - DETX (139):**

A shopping assistance application may also be invoked when the user uses handheld computing device 12 to identify an item in a store. Illustrative steps involved in arrangements of this type are shown in FIG. 36. At step 422, handheld computing device may be used to identify an item of interest. For example, a user may use handheld computing device 12 to scan the bar code of an item or to identify an item using RFID techniques. At step 424, the handheld computing device 12 may recognize that an item has been wirelessly identified. The shopping assistance application may then be automatically invoked at step 424. At step 426, the user may be provided with an opportunity to obtain information and to access information on the item.

**Detailed Description Text - DETX (141):**

Other shopping assistance features may require that the handheld computing device access remote computers. For example, when it is desired to provide the user with an opportunity to order products on-line from remote order fulfillment facilities, a communications link may be established between the handheld computing devices and the remote fulfillment facilities. Other functions, such as checking whether an item is in stock at a store, requesting in-store sales assistance, ordering a product in a store that is to be taken home with the user, and other such functions may involve establishing a communications link with a computer associated with a store. If such a computer is located in the vicinity of the store, the communications link that is established may be a local wireless communications link.

**Detailed Description Text - DETX (144):**

Handheld computing device 12 may access such services by using a local wireless link to access the computer with which the service is provided. Handheld computing device 12 may also access services by using a local wireless link to access a wireless local network access point. A communications network such as the Internet may be used for communications between the wireless local network access point and the service. Services may also be accessed using remote wireless links or wired links, or by transferring data to and from the service using removable storage media or the like.

**Detailed Description Text - DETX (145):**

An illustrative screen 428 that may be provided by handheld computing device 12 when providing a shopping assistance service in a shopping mall environment is shown in FIG. 37. Screen 428 may be displayed after the shopping assistance service is invoked. The service may be invoked by selecting an icon or other on-screen option displayed on handheld computing device 12. The icon or other suitable notification may be automatically displayed by handheld computing device 12 when the user enters the mall. For example, the handheld computing device 12 may detect the presence of local wireless transmissions from equipment in the mall that is advertising the availability of the shopping assistance service and may automatically convey information on the availability of the service to the user by displaying the icon. If desired, the shopping assistance service may be automatically invoked when handheld computing device 12 detects the presence of suitable local wireless transmissions. These are

such as map 494 of FIG. 42. Location information 492 may also be displayed directly on screen 484. If desired, additional information such as store hours, specials, etc. may also be displayed on screens such as screen 484.

✓ Detailed Description Text - DETX (157):

Information on the user's present location may be determined based on information on which local transmitter/receiver handheld computing device 12 is communicating with using local wireless communications, may be determined based on GPS techniques or cellular-network-based techniques, or may be obtained using a combination of such approaches or any other suitable approach. A map and directions application may be used to generate the map of FIG. 42 and the directions of FIGS. 42 and 43. Such an application may be implemented using a local computer or a remote server or any other suitable arrangement.

Detailed Description Text - DETX (158):

An illustrative screen of the type that may be displayed by handheld computing device 12 when the user selects a store logo from a screen such as screen 476 of FIG. 40 is shown in FIG. 44. Screen 504 may contain promotional material 506, information 508 on store hours, the location of the store, etc., and information 510 on special offers.

Detailed Description Text - DETX (159):

If the user selects an option such as map option 436 of FIG. 37, handheld computing device 12 may display a map such as map 512 of FIG. 45. Map 512 may contain information 514 on the user's present location. Map 512 may also contain a selectable logo 516 that is embedded in the map. Logo 516 is associated with a particular store and is therefore displayed at the map location that corresponds to the store's location. Options such as option 518 may be used to change the scale of the map, to display different portions of the map, etc.

Detailed Description Text - DETX (160):

If the user selects an option such as specials option 438 of FIG. 37, handheld computing device 12 may display a screen such as screen 520 of FIG. 46. Screen 520 may contain passive and interactive information on specials available at the mall. Specials option 522 may allow the user to obtain a discount at a clothing store. Option 524 may allow the user to obtain a discount on a haircut. Option 526 may allow the user to obtain a discount on a meal at a restaurant. If the user desires to view more options, the user may select more option 528.

Detailed Description Text - DETX (162):

If the user selects an option such as store and product locator option 440 of FIG. 37, handheld computing device 12 may display a screen such as screen 530 of FIG. 47. Search for a store option 532 may be used to locate a desired store. A store may be located by name using option 534, by type using option 536, and by location within the mall using option 538. These search options

merely illustrative examples. Any suitable technique may be used to invoke the shopping assistance service if desired.

Detailed Description Text - DETX (146):

Screen 428 may contain options such as what's new option 430, general information option 432, directory option 434, map option 436, specials option 438, and store and product locator option 440. Screen 428 may also contain promotional material such as advertisement 442.

Detailed Description Text - DETX (148):

Screen 446 may contain a calendar of upcoming events. For example, information 450 may be provided on an event at a bookstore. If the user is interested in the event, the user may select set reminder option 452. Handheld computing device 12 may store the reminder locally or may store the reminder on a remote server or the like. Just before the event for which the reminder was set, handheld computing device 12 may be used to alert the user to the upcoming event. If the user selects more info option 454, handheld computing device 12 may obtain and display additional information on the event.

Detailed Description Text - DETX (150):

Information 460 may also be provided on an event associated with a music store. If the user selects set reminder option 462, the user may be reminded of the event just before it is scheduled to begin. More info option 464 may be used to obtain additional information on the music store event.

Detailed Description Text - DETX (153):

If the user selects directory option 434 of FIG. 37, handheld computing device 12 may display a screen such as screen 476 of FIG. 40. Screen 476 may contain a list 478 of various types of stores. Some store categories may have associated interactive logos 480 or other suitable indicators or information. The logos may be associated with particular stores in the mall. If the user selects a logo, handheld computing device 12 may present the user with information on the store associated with the logo. This allows the user to bypass screens that the user might otherwise be required to view. Because using logos 480 therefore provides a competitive advantage, merchants may be charged a fee for placing logos 480 on screen 476 or on any other suitable screen provided by the shopping assistance application. If the user selects more option 482, more store listings may be displayed.

Detailed Description Text - DETX (154):

If the user selects a store category such as shoes from directory screen such as screen 476, handheld computing device 12 may display a screen such as screen 484 of FIG. 41. Screen 484 may contain promotional information such as advertisement 486. A list 488 of stores in the selected store category may be displayed. Options such as map options 490 may be displayed adjacent to each store listing. If the user selects a given map option 490, handheld computing device 12 may display a map showing the location of the corresponding store



may be combined if desired. Search by product option 540 may allow a user to locate a desired product from among the products carried by the merchants at the mall. Products may be located by name using option 542, by type using option 544, and by location within the mall using option 546. These search options may be combined if desired. Searches may be initiated by selecting search option 548.

**Detailed Description Text - DETX (163):**

A central database containing store and product information for the merchants in the mall may be provided. Each merchant may provide the central database with database information concerning the products carried by that merchant. If desired, separate databases may be provided by each merchant. The store and product locator function may be implemented by searching each of the individual databases. These are merely illustrative examples. Any suitable approach for implementing the store and product locator function may be used if desired.

**Detailed Description Text - DETX (164):**

Illustrative steps involved in providing shopping mall search services are shown in FIG. 48. At step 550, handheld computing device 12 may provide the user with on-screen options that allow the user to search for desired stores and products and services. The relevant databases may then be searched and the search results displayed to the user at step 552. At step 554, the user may be provided with an opportunity to respond to the search results. In particular, the search results may contain interactive entries. When the user selects a desired entry (e.g., a product), the user may be provided with additional information or access to a service related to the selected entry. As an example, if the user locates a particular item using a search, selecting the item from the search results screen may take the user to an on-line product information and ordering site of the mall retailer that carries the item.

**Detailed Description Text - DETX (166):**

At step 556, handheld computing device 12 may be used to provide the user with messages when the user is in the proximity of a merchant (i.e., when the user walks by a merchant in the mall). The user's location may be determined by determining which local wireless transmitter/receiver handheld computing device 12 is in communication with or by using GPS techniques or other location-determination techniques. Messages that may be presented in this way include advertisements and the like.

**Detailed Description Text - DETX (174):**

Region 572 may be used to display information on notification from local merchants. For example, a notification may indicate that the user's film has been processed by a photo store.

**Detailed Description Text - DETX (187):**

If the user makes the commitment or if no commitment was required, handheld


computing device 12 may provide the user with the benefit of the special at step 614. For example, if the user is to make a purchase, handheld computing device 12 may be used to facilitate the redemption of the offer. If handheld computing device 12 is used to consummate the purchase transaction (e.g., over a local wireless link), handheld computing device 12 may both pay for the purchase and provide the merchant with information that helps to verify the user's eligibility for the discount or other offer.

**Detailed Description Text - DETX (189):**

As shown by the illustrative confirmation screen 616 of FIG. 59, the user may be provided with information 618 on such a code at the time of committing to the special. An option 620 may be provided that allows the user to save the code in handheld computing device 12 until needed during a purchase transaction. These are merely illustrative examples, any suitable way for ensuring that the user obtains the benefit of the special may be used if desired.

**Detailed Description Text - DETX (197):**

Illustrative steps involved in sending notification messages to handheld computing devices in a mall or other such establishment are shown in FIG. 63. At step 638, the user is allowed to request a notification from the merchant. If the user requests notification, a computer at the merchant or the like may send the notification to handheld computing equipment 12 over a local or remote wireless link at step 640. Notifications may be sent when clothes are ready at the cleaner, when the user's car is ready (e.g., if the oil was being changed), when prepared-to-order food is ready, when film is ready to be picked up, etc. Such notifications may be sent automatically by tying the transmission of the notifications to the state of certain equipment at the merchant. For example, a photo processor may electronically indicate when it is finished processing the user's film. At the cleaners, an order may be processed using an electronic tracking system. A notification may be sent to the user when the tracking system indicates that the user's clothes are ready. These are merely illustrative examples. Notifications may be sent to the user based on any suitable criteria.



**Detailed Description Text - DETX (201):**

FIG. 66 shows how a reminder message 658 may be displayed for a movie. Reminder 658 may contain information 660 on the scheduled show time of a movie for which the user purchased a ticket. The movie theater may have a computer that automatically sends reminder messages to all users who purchase tickets electronically using handheld computing devices. Reminder messages may be sent, for example, 20 minutes before the time at which the movie is to be shown. During the purchase transaction, the addresses of these users may be collected by the computer. Users may also supply information on the communications addresses of handheld computing devices 12 manually. These are merely illustrative examples. Information on the communications addresses of the users who have purchased tickets for a given movie and who wish to be reminded of the movie may be gathered using any suitable approach.

**Detailed Description Text - DETX (214):**

At step 684, the location of the user or the user's property may be monitored. Location may be monitored, for example, using GPS techniques or any other suitable techniques. This may allow the user to set a reminder with handheld computing device 12 that is presented to the user when the user arrives in particular city or when the user arrives in a particular train station or an airport, etc.

**Detailed Description Text - DETX (219):**

Restrictions may be imposed on the use of handheld computing device 12 for financial transactions such as transactions involving the wireless purchase of products or services. This may allow, for example, a parent to control or monitor the shopping behavior of a child who is using handheld computing device 12. As an example, information on the location of handheld computing device 12 and information on each financial transaction made using handheld computing device 12 may be supplied to a service provider over a local or remote wireless link. The parent may access the service provider using a web interface or the like to view a report on the status of handheld computing device 12.

**Detailed Description Text - DETX (220):**

An illustrative status report screen that may be provided to the parent over the Internet or the like is shown in FIG. 72. Screen 694 may contain information 695 on the current location of handheld computing device 12. Location information may be obtained, for example, from a wireless local area network in a mall by determining which local wireless transmitter/receivers in the network are being used to communicate with handheld computing device 12. Location information may also be determined using GPS information or information from cellular telephone terrestrial base stations or the like.

**Detailed Description Text - DETX (221):**

Screen 694 may also contain information on the historical locations 698 of handheld computing device 12 at various times 696. For each time and location entry on screen 694, information 700 may be provided on the amount and nature of each corresponding financial transaction. Information on the amount of the transaction may be provided to the service provider by the handheld computing device 12 or by the merchant with which the handheld computing device interacted during the financial transaction. The nature of the transaction (e.g., food, cloths, etc.) may be determined from information provided by the merchant during the transaction or may be determined from a database that correlates various store locations with corresponding product categories. Such a database may be maintained by the service provider or other suitable entity.

**Detailed Description Text - DETX (222):**

Illustrative steps involved in monitoring the location of handheld computing device 12 are shown in FIG. 73. At step 702, the location of handheld computing device 12 may be monitored using, for example, information on which local transmitter/receivers are in use in local wireless communications between

the mall or other establishment and the handheld computing device, GPS information, etc.

**Detailed Description Text - DETX (226):**

The user may use handheld computing device 12 or a personal computer or any other suitable device to establish spending limits for financial transactions involving handheld computing device 12. An illustrative screen 710 (e.g., on a computer screen, a handheld computing device, in-home electronic device, etc.) that may be displayed for the user when the user is establishing financial limits for handheld computing device 12 is shown in FIG. 75. Screen 710 may contain information 712 on the type of transaction for which a limit is being set and information 714 on the corresponding limit. If desired, certain types of transactions may be prohibited entirely (e.g., toy purchases in the example of FIG. 75) and other types of transactions may have monetary limits. Another type of limit that may be established involves the dates 716 on which the handheld computing device 12 may be used for financial transactions. The user may be provided with on-screen options that allow the user to establish particular times and dates when handheld computing device 12 may and may not be used.

**Detailed Description Text - DETX (227):**

Purchase transactions being made with handheld computing device 12 may be authorized remotely. An illustrative screen 718 that may be presented to the user (e.g., at a personal computer, handheld computing device, in-home electronic device, etc.) when a request is being made by a child or other individual who wishes to have a purchase transaction authorized is shown in FIG. 76. Screen 718 may contain information 720 on the item that is to be purchased, information 722 on the store at which the item is to be purchased, and information 724 on the price of the purchase. This information may be gathered, for example, by a cash register computer or other financial transaction equipment in the store in which the child is attempting to purchase the product. The information may be provided to the service provider and communicated to the user over a communications network (e.g., the Internet).

**Detailed Description Text - DETX (230):**

At step 730, the user may be provided with on-screen options that allow the user to establish transaction restrictions. At step 732, handheld computing device 12 may be used for financial transactions subject to the transaction restrictions. At step 734, information may be provided to the user (e.g., over the Internet or the like) regarding compliance with the transaction restrictions. The user may also be provided with on-screen options or other opportunities to authorize transactions remotely.

**Detailed Description Text - DETX (232):**

As another example, the user may have recently used handheld computing device 12 to view directory information on sports stores in a mall. This information may be used to present sports-related advertisements to the user with handheld computing device 12. An illustrative advertisement 736 that may

be presented to a user who is interested in sports is shown in FIG. 78. Advertisement 736 may contain information 738 on a special offer at a sports store. If the user selects option 740, handheld computing device 12 may display directions to the sports store for the user. If the user selects set reminder option 742, a reminder may be set. The reminder may, for example, be presented to the user once every hour to remind the user that the sports store is having a sale. Advertisement 736 may contain video 744. Advertisement 736 may be provided to handheld computing device 12 using a remote or local wireless link or a wired link or other suitable communications path.

Detailed Description Text - DETX (233):

Illustrative steps involved in monitoring a user's actions and in presenting targeted material to the user are shown in FIG. 79. At step 746, the user's activities may be monitored. For example, the user's shopping activities such as purchase transactions and other financial transactions may be monitored. Purchase and financial transactions that involve on-line purchasing and purchasing over local wireless links may be monitored. Information may be collected on which products the user scans with a bar code scanner or identifies with RFID techniques and what types of product literature the user requests. If the user interacts with interactive advertisements, information may be gathered on which types of advertisements the user interacts with most frequently. The user's location may be monitored. For example, if the user is frequently inside a particular store, it may be determined that the user is interested in the products of that store. If the user is often on the skating rink in a mall, it may be concluded that the user is interested in skating or sports. The user's interests may also be determined by analyzing which types of audio and video content the user accesses. These are merely illustrative examples. Any information that may be gathered using handheld computing device 12 or the Internet or any other source may be used if desired.

Detailed Description Text - DETX (237):

Information on the advertisements that the user has viewed and interacted with using handheld computing device 12 may be collected. This information may be used to promote products or services that compete with previously displayed advertisements. For example, if the user has interacted with advertisements for a particular clothing store, a competing clothing store may target advertisements to the user.

Detailed Description Text - DETX (238):

The user and other parties may create shopping lists and wish lists using a personal computer, an in-home electronic device (e.g., a refrigerator-mounted electronic device or countertop electronic device), a handheld computing device, an automobile personal computer, etc. Shopping list information may be stored locally at the device that was used to create the shopping list, on a remote computer (e.g., a remote server that may be accessed over the Internet), using any other suitable approach, or a combination of such approaches. An illustrative shopping list 750 that may be displayed on a personal computer or an in-home electronic device or the like is shown in FIG. 80. Shopping list 750 may include information 752 on items that may be ordered over an on-line

connection (e.g., over the Internet). If the user selects order now option 756, for example, the personal computer or in-home electronic device may display on-screen options that allow the user to provide credit card information or account information and to complete the on-line order.

**Detailed Description Text - DETX (239):**

Shopping list 750 may also include information 754 on items that the user intends to pick up or purchase in a grocery store. This information may be stored locally, on a remote server, on a computer associated with or located at the store, etc. The user may access information 752 and information 754 when shopping in the store. If desired, handheld computing device 12 may only display in-store shopping list information such as information 754 when the user is in the store.

**Detailed Description Text - DETX (240):**

Illustrative steps involved in using shopping lists such as shopping list 750 are shown in FIG. 81. At step 758, on-screen options may be displayed on the user's electronic device to provide the user with an opportunity to create a shopping list. The user may create a shopping list for in-store shopping and a shopping list for on-line shopping. The lists may be combined if desired. At step 760, after the user submits the on-line order, the user's on-line order may be processed. For example, the order may be processed at an order fulfillment facility. At step 762, handheld computing device 12 or other in-store equipment such as an in-store kiosk, cart-mounted computer, etc. may be used to present the shopping list to the user. For example, handheld computing device 12 may display a list of the shopping list items that the user intended to pick up or purchase in the store.

**Detailed Description Text - DETX (241):**

When the user arrives at the store, the user may access a shopping assistance service using handheld computing device 12. The user may access the service by downloading information from a kiosk at the store (e.g., over a local IR or RF wireless link or a physical link) or from a local wireless transmitter/receiver (e.g., a local RF wireless transmitter that has wireless coverage in the vicinity of the entrance of the store). The user may also access the service in real time over a local wireless link.

**Detailed Description Text - DETX (244):**

Accessing the shopping assistance service locally may ensure that the service is specific to the user's location (e.g., the store or other establishment in which the user is located or interested). If the service is accessed remotely, the user may select on-screen options that ensure that the service is specific to the user's location. If desired, information on the location of handheld computing device 12 may be used to ensure that the service that is provided to the user is specific to the user's location.

**Detailed Description Text - DETX (245):**

An illustrative screen 764 that handheld computing device 12 may display to the user for the shopping assistance service associated with a store or other establishment is shown in FIG. 82. Screen 764 may serve as a main menu or welcome screen for the shopping assistance service. In the example of FIG. 82, the shopping assistance service is directed toward a supermarket. This is merely illustrative. The shopping assistance service may be associated with any suitable entity if desired.

**Detailed Description Text - DETX (246):**

If the shopping assistance service is used in a store that has shopping carts, receptacles may be attached to the shopping carts into which users may temporarily place handheld computing devices. Such receptacles may be simply holders for the handheld computing device or may be electrically active cradles. Cradles or attachments or accessories may be provided to assist the user in using the shopping assistance service. For example, such physical connections may be used to provide the shopping assistance service application to the user or may be used to enhance the wireless communications capabilities of handheld computing device 12.

**Detailed Description Text - DETX (248):**

If the user selects directory option 766, handheld computing device 12 may display a screen such as screen 766 of FIG. 83. Screen 766 may contain information 778 on items on the user's shopping list. The shopping list items may be arranged by location. For example, location information 780 may be provided that identifies which aisle each item is in or that otherwise provides information on the location of the items in the store. Logos 782, advertisements 784 and 786, and other interactive and promotional content may be provided on screen 766. Logos may contain an graphic representation of a manufacturer's logo, a product or service logo, a brand logo, a store logo, or a logo of any other suitable entity. A logo may serve as a type of promotion or advertisement. Other advertisements may be larger and may contain additional information. For example, an advertisement may contain information on a product, information on a manufacturer, a logo, a special offer such as a discount, coupon or other financial incentive, promotional ad copy, etc.

**Detailed Description Text - DETX (250):**

The store's computing system may charge manufacturers and others for placing promotional material on the various screens displayed by the shopping assistance service. Manufacturer's and others may transmit logos and promotional offers to this computer system electronically (e.g., over a communications network such as the Internet).

**Detailed Description Text - DETX (252):**

It may be possible to provide relatively more video to users in the store if a local wireless link is used to deliver the video than if a remote wireless link is used, because local wireless links need not necessarily be subject to the same bandwidth restrictions that remote wireless links such as cellular telephone links are subject to. Moreover, it may be more feasible for local

wireless links to be provided in an "always on" condition than remote links. In an always on configuration, users may maintain a communications link for data or the like even if there is little or no present use for the link. Certain remote communications path resources (e.g., cellular telephone system resources) may be too scarce to provide a practical data communications link with handheld computing device 12 that is always on. These considerations may often favor using local communications links to communicate with handheld computing device 12.

Detailed Description Text - DETX (255):

Promotional information such as promotional information option 792 may be displayed that presents an interactive coupon, discount, or other offer or financial benefit or other benefit. In the example of FIG. 83, the user may be presented with an on-screen option 792 to receive a discount on the purchase of particular type of cookie. If the user selects option 792, the user may receive the discount or may be provided with additional on-screen options that allow the user to be provided with the discount. The user may receive the discount by crediting the user's credit card, debit card, or other account or by deducting an appropriate amount from the user's purchase price during checkout. If desired, the user's acceptance of an offer may be communicated from handheld computing device 12 to the store's cash register system wirelessly from handheld computing device 12 (e.g., when the user responds to an option such as option 792).

Detailed Description Text - DETX (257):

When search option 804 is selected, handheld computing device 12 may initiate a database search for information on the product. If desired, the database search may be performed locally on a product database stored in handheld computing device 12. The database search may also be performed by accessing a product database in the store or associated with the store. If desired, the product database may be maintained on a remote server or the like. If handheld computing device 12 does not have a product database, the product database may be accessed using a local or remote wireless link.

Detailed Description Text - DETX (258):

The results from the database query may be displayed by handheld computing device 12 using any suitable display format. An illustrative search results screen 808 that may be displayed by handheld computing device 12 is shown in FIG. 86. Information 810 may be provided on products carried by the store that match the search criteria. In the example of FIG. 86, a search was performed for tomato sauces, so the products that are displayed are various brands of tomato sauce.

Detailed Description Text - DETX (264):

If the user selects option 772 of FIG. 82, handheld computing device 12 may display the user's shopping list. An illustrative shopping list screen 842 that may be displayed by handheld computing device 12 is shown in FIG. 89. In the example of FIG. 89, shopping list items 844 may be arranged by location



(e.g., by the aisle in the store in which the items are located). Logos and advertisements 846 may be displayed. The logos and advertisements 846 may be interactive and may be related to the entries in the shopping list. Logos and advertisements 846 may be displayed adjacent to related entries in the list. Logos and advertisements and other such promotional materials may be displayed when an item on the list matches the product or type of product being promoted by the materials. An advertisement that is for the same product or type of product as an entry in the list may be displayed immediately adjacent to the entry. More option 848 may be provided to allow the user to view additional shopping list items.

**Detailed Description Text - DETX (265):**

Using a screen arrangement such as the arrangement of FIG. 89, the user may systematically shop for the items on the shopping list by proceeding through each of the aisles of the store.

**Detailed Description Text - DETX (266):**

Another illustrative shopping list screen that may be displayed by handheld computing device 12 when the user selects an option such as option 772 of FIG. 82 is shown in FIG. 90. Screen 850 may contain shopping list items 852 that are arranged by their location in the store. Icons 854 may be associated with the items in the list. Icons 854 may be used to indicate whether the items have any associated specials. Icons 854 may also be used to indicate whether items are discounted or are the subject of a special to which the user has responded or an offer that the user has accepted.

**Detailed Description Text - DETX (267):**

If desired, icons 854 may be used to indicate when items on the list have been added by the user or have been added by another party such as another member of the user's family. Icons may be used to indicate which items were added to the list from in-home electronic devices or other such devices and which items have been added in the store (e.g., by selecting an option such as one of options 834, 836, or 840 of FIG. 88).

**Detailed Description Text - DETX (271):**

An option 874 may be displayed that allows the user to print the recipe. The recipe may be printed using a kiosk in the store, using a printer located in an aisle, using a printer attached to a shopping cart, using a printer attachment associated with handheld computing device 12, or using any other suitable printer arrangement.

**Detailed Description Text - DETX (274):**

If the user selects option 878, handheld computing device 12 may display on-screen options that provide the user with an opportunity to purchase a recipe book. For example, the user may purchase an electronic book that may be downloaded to handheld computing device 12 or an in-home electronic device or other computing device. The user may also purchase a physical book. A

physical book may be delivered to the user's home (e.g., using an order fulfillment facility). Orders may be processed using the store's computer equipment, using a service provider (e.g., at a remote server), or using any other suitable entity.

**Detailed Description Text - DETX (277):**

At step 884, the shopping assistance service may use handheld computing device 12 to display product information, store information, and other suitable interactive promotional information for the user. The information may be displayed on any screen provided by the shopping assistance service or on any other suitable screen. The information may be targeted based on the interests of the user. For example, the information may be targeted based on the shopping list information of the user, may be targeted based on which advertisements the user responds to in the shopping assistance service, etc.

**Detailed Description Text - DETX (278):**

The promotional material that is displayed to the user need not be related to the items sold in the store in which the user is located. Any suitable information or products or services may be promoted. For example, when the user is using the handheld computing device to access a shopping assistance service in a supermarket, the shopping assistance service may display an advertisement for a lawn care service. If the user responds to the advertisement, handheld computing device 12 may provide on-screen options that allow the user to sign up for the lawn care service. For example, a communications link (e.g., an Internet link) may be established between handheld computing device 12 and the lawn care service.

**Detailed Description Text - DETX (279):**

As another example, the user may order audio recordings (e.g., MP3 files or the like) and these may be delivered to the user's handheld computing device 12, the user's automobile personal computer, the user's in-home electronic device, etc. As yet another example, advertisements may be provided for books, whether or not the books are related to the products sold in the store.

**Detailed Description Text - DETX (281):**

At step 886, after the user has responded to the promotional information, the user may be provided with a corresponding discount or other benefit. For example, if the user responds to an in-store special or if the special is available to all shoppers, the user's purchase price may be reduced at checkout.

**Detailed Description Text - DETX (282):**

Shopping list information and other information that is presented to the user by handheld computing device 12 may be displayed based on the user's location within the store. The user's location in the store may be determined, for example, by determining which local wireless transmitter/receiver the user is in communications with. If an arrangement such as that of FIG. 17 is used,

for example, the aisle in which the user is located may be determined. The user's location may also be determined using techniques such as GPS techniques or network techniques in cellular telephone networks or the like. Regardless of the arrangement that is used to determine the user's location, the user's in-store location may be used assist in the presentation of material to the user by the shopping assistance service. The shopping assistance service may process the location information using handheld computing device 12, a computer that is located in the store or that is associated with the store, a remote server, or using any other suitable equipment.

**Detailed Description Text - DETX (285):**

As the user moves throughout the supermarket, handheld computing device 12 may automatically update screen 888 to reflect the user's current location. For example, as the user travels from aisle 14 to aisle 15, the information on screen 888 such as the aisle description, the shopping list items, and the promotional material may be updated to reflect the user's position in aisle 15.

**Detailed Description Text - DETX (286):**

An illustrative advertisement that may be displayed by handheld computing device 12 is shown in FIG. 95. Advertisement 900 may be displayed as a full screen advertisement after the user selects a smaller icon or logo or advertisement or may be displayed as a full screen advertisement with little or no intervention by the user. Advertisement 900 may be displayed to all users or may be displayed to users who have been determined to be interested in ice cream. Advertisement 900 may be displayed at any location in the store or may be displayed by handheld computing device 12 when the user is in the proximity of dairy products or ice cream.

**Detailed Description Text - DETX (287):**

Advertisement 900 is an example of an in-store advertisement for a product that may be supplied by an order fulfillment facility or the like that is not located at the store. Advertisement 900 may contain information 902 on the advertised product or service, including price and shipping information. Advertisement 900 may also include promotional information 904. Promotional information 904 may include text (e.g. a description of the ice cream maker's specifications), graphics (e.g., a drawing or a digital image of the ice cream maker), audio (e.g., an audio sound track with music or a promotional verbal message), and video (e.g., a video clip demonstration of the ice cream maker). Video clips may contain audio. An ice cream recipe 906 may also be displayed.

**Detailed Description Text - DETX (290):**

Illustrative steps involved in displaying information to handheld computing equipment 12 in a store based on the user's location or based on shopping list information or the like are shown in FIG. 96. At step 912, the user may be provided with an opportunity to establish a shopping list. For example, the user may create a shopping list using handheld computing device 12, an in-home electronic device, a personal computer, an automobile personal computer, etc.

**Detailed Description Text - DETX (291):**

At step 914, the user's location in a store may be determined. The user's location in the store may be determined, for example, by determining which local wireless transmitter/receiver the user is in communications with. If an arrangement such as that of FIG. 17 is used, for example, the aisle in which the user is located may be determined. The user's location may also be determined using techniques such as GPS techniques or network techniques in cellular telephone networks or the like.

**Detailed Description Text - DETX (293):**

The user may use handheld computing device 12 to add shopping list items to the shopping list when the user is in the store. Illustrative steps involved in this process are shown in FIG. 97. At step 918, the user may be provided with an opportunity to create a shopping list before entering a store. For example, the user may be allowed to generate a shopping list before entering the store using equipment such as handheld computing device 12, an in-home electronic device, a personal computer, an automobile personal computer, etc.

**Detailed Description Text - DETX (294):**

At step 920, handheld computing device 12 may be used to provide the user with on-screen options that allow the user to add items to the shopping list while the user is in the store. For example, on-screen options such as options 830, 834, and 836 of FIG. 88 and options such as options 870 and 872 of FIG. 92 may be displayed.

**Detailed Description Text - DETX (295):**

At step 922, handheld computing device 12 allows the user to display the shopping list for use in the store.

**Detailed Description Text - DETX (296):**

At step 924, handheld computing device 12 may be used to arrange for the delivery of information, products or services. For example, the user may be provided with on-screen options that allow the user to request that information be delivered to handheld computing device 12, an in-home electronic device, a personal computer, an automobile personal computer, etc. The information may or may not be delivered in real time. The information may be supplied from a computer located in the store or associated with the store or may be supplied from a remote server or the like.

**Detailed Description Text - DETX (298):**

Manufactures and other such parties may provide benefits to the user such as coupons, discounts, and other offers and financial benefits. Illustrative steps involved in providing such benefits to the user are shown in FIG. 98. At step 926, a manufacturer may be provided with an opportunity to provide coupons, discounts, and other benefits to the user. For example, a store's computer system or other equipment may be configured to electronically receive

information from manufacturers on the types and amounts of discounts and the like that the manufacturer wishes to provide to shoppers. The manufacturers may provide such benefits to all shoppers or to certain shoppers with whom the manufacturers or third-party services have interacted over the Internet or the like.

**Detailed Description Text - DETX (299):**

At step 928, the store's computer system or other equipment may be used to allow the store to pass the manufacturers' coupons, discounts, and other offers and benefits to the store's customers. For example, the store's computer system may be accessed by handheld computing device 12 when displaying information on specials for the user. The store's computer system may also be used to ensure that eligible users receive the appropriate discounts at checkout.

**Detailed Description Text - DETX (303):**

At step 936, the store's computer system or other suitable equipment may be used to ensure that eligible users receive discounts at checkout. Various techniques may be used to ensure that users who accept offers or are otherwise entitled to a discount or the like receive the appropriate financial benefit at checkout. For example, the user may have a loyalty card (e.g., a bar-coded or plastic credit-card-sized or key-chain-sized card) that has an associated account number. The user may use this loyalty card during checkout to receive discounts on certain products. The store's cash register system can verify that a user's loyalty card account is valid during the checkout process by scanning the bar code, by reading a magnetic strip on the loyalty card, by allowing a store employee to type in the number of the loyalty card, etc. Because the customer's identity may be ascertained during checkout based on the loyalty card account information, this account or any type of account may be used by handheld computing device 12 to inform the store of the identity of the user when the user is responding to an on-screen offer displayed by handheld computing device 12.

**Detailed Description Text - DETX (304):**

As another example, each time the shopping assistance service provides an interactive offer to the user, the user may be asked to provide identifying information to the handheld computing device 12 such as the user's name. The shopping assistance service may provide this identifying information and information on the offers to which the user responded to the store's cash register system for use during checkout. The user may be asked to provide the identifying information to the store's cash register system during checkout, so that the user's entitlement to the offers may be verified and the offers applied to the user's purchases.

**Detailed Description Text - DETX (305):**

If handheld computing device 12 is used for wireless purchase transaction during checkout, handheld computing device 12 may wirelessly provide the store's cash register system with information that identifies the user or that

directly identifies which offers the user is entitled to.

**Detailed Description Text - DETX (307):**

Handheld computing device 12 may be used to provide the user with access to a shopping assistance service in a department store or other such establishment. An illustrative screen 938 that may be provided by a shopping assistance service for a department store is shown in FIG. 100. Screen 938 may contain promotional information such as advertisement 940. Screen 938 may also include on-screen options such as directory option 942, your shopping list option 944, request sales assistance option 946, on-line shop option 948, gift registry option 950, and specials option 952.

**Detailed Description Text - DETX (308):**

If the user selects directory option 942 of FIG. 100, handheld computing device 12 may display a screen such as screen 954 of FIG. 101. Screen 954 may contain a list 956 of the various departments of the store. For example, departments such as men's clothing, home appliances, and furniture may be listed. The departments may be grouped together based on location, may be organized alphabetically, etc.

**Detailed Description Text - DETX (310):**

If the user selects your shopping list option 944 of FIG. 100, handheld computing device 12 may display the user's shopping list. The shopping list may have been generated using, for example, a personal computer, an in-home electronic device, an automobile personal computer, or handheld computing device 12. The shopping list information may be stored on any suitable computer such as a computer located at the store, a computer associated with the store, a remote server (e.g., a remote server accessible over the Internet), etc.

*Third Party  
Server*

**Detailed Description Text - DETX (311):**

The user may use handheld computing device 12 to request sales assistance. The user may, for example, select an option such as request sales assistance option 946 of FIG. 100. If the user selects option 946, handheld computing device 12 may display a screen such as screen 960 of FIG. 102. Screen 960 may contain a confirmation message 962 and information 964 on the location at which the user should meet the store's sales assistant. If desired, information 964 may be based on the user's current location. The user's current location may be determined using any suitable technique such as by determining which local wireless transmitter/receiver handheld computing device 12 is in communication with or by using GPS techniques or other location-determination techniques. Information 964 may also be based on the user's request for sales assistance. For example, if the user was viewing a screen related to the electronics department when the user selected an on-screen option requesting sales assistance, the user may be provided with sales assistance in the electronics department.

**Detailed Description Text - DETX (312):**

If desired, screen 960 may contain an option such as option 966 that uses handheld computing device 12 to automatically place a telephone call to one of the store's customer service representatives or other store personnel.

**Detailed Description Text - DETX (313):**

The department store may provide customers with a gift registry feature. Customers may sign up with the registry over the web or using equipment in the store. A customer may provide name and address information and a list of gifts (e.g., wedding gifts) that the user wishes to receive. The registry information may be stored in a database on a computer located in the store, a computer associated with the store, a remote server, etc.

**Detailed Description Text - DETX (320):**

The user may select an option such as option 994 of FIG. 106 to order the ingredients associated with a recipe being discussed on the cooking video. The order may be placed independently or may be combined with an existing on-line order. Information on which ingredients are associated with the cooking video may be provided using any suitable technique. For example, this information may be provided to the in-home device or handheld computing device over the Internet or a suitable wireless communications link. If the video is being played back from a storage medium, information on the ingredients may be obtained from the storage medium. If the user places an on-line order, the order may be fulfilled by an order fulfillment facility or the like at step 988 of FIG. 105.

**Detailed Description Text - DETX (321):**

The in-home device or handheld computing device may provide the user with an opportunity to create a shopping list based on the content of the video by, for example, displaying on-screen options for the user such as on-screen option 996 of FIG. 106. The user may select an appropriate option such as option 996 to direct the in-home device or handheld computing device to add the ingredients being discussed in the video to the user's shopping list. Information on which ingredients are associated with the cooking video may be provided using any suitable technique. As just one example, this information may be provided to the in-home device over the Internet or may be provided to the handheld computing device over a local or remote wireless link. If the video is being played back from a storage medium, information on the ingredients may be obtained from the storage medium. If the user adds the ingredients to the user's shopping list, the shopping list may be used during in-store shopping at step 990. For example, the shopping list may be displayed a mobile electronic device such as a handheld computing device 12 or a shopping cart-mounted electronic device during in-store shopping.

**Detailed Description Text - DETX (322):**

Kiosks may be used to deliver content to handheld computing device 12. An illustrative audio kiosk system is shown in FIG. 107. System 998 may have an audio kiosk 1000 from which a user at handheld computing device 12 may download

audio content over a wireless or wired link 1002 (e.g., a local IR or RF wireless link). The handheld computing device of FIG. 107 may be a handheld computer or a handheld MP3 player or the like. Handheld computing device 12 may be used to pay for the products and service of store 1004 by wirelessly interacting with cash register computer 1004. The user may also pay for products by wirelessly interacting with audio kiosk 1000 (either through wireless communications circuitry 1014 or smart card reader 1016. If desired, audio kiosk 1000 and the store's cash register computer 1004 may be connected by communications path 1006. This may facilitate transactions in which the user pays for the services of audio kiosk 1000 at cash register 1004.

Detailed Description Text - DETX (323):

Audio kiosk 1000 may include control circuitry 1008. Control circuitry 1008 may be based, for example, on a microprocessor or microcontroller or the like. Memory circuitry in control circuitry 1008 may be used to store instructions for applications that are executed by control circuitry.

Detailed Description Text - DETX (325):

Audio files may be stored in audio database 1018. If desired, audio database 1018 may be implemented on a remote server or media jukebox or the like. Any suitable format may be used to store audio files in audio database 1018. As just one example, audio files may be stored in the MP3 format.

Detailed Description Text - DETX (341):

Content may be distributed to audio kiosks such as audio kiosk 998 using any suitable arrangement. For example, as shown in FIG. 111, control and content facilities 1066 may be connected to multiple audio kiosks 1070 over a communications network 1068. Control and content facilities may be used to update the audio files stored in audio database 1018. If desired, one or more master audio databases may be maintained at facilities 1066 and audio content from such databases distributed to audio kiosks 1070 over communications network 1068.

Detailed Description Text - DETX (348):

Handheld computing device 12 may be used to order products that are to be picked up in a store. For example, a user in a supermarket may use handheld computing device 12 to place an order at the deli section of the supermarket. The user need not make a financial commitment to purchase the product at the time the order is placed. In particular, the user may place the order without providing any financial information to the deli.

Detailed Description Text - DETX (352):

The order may be placed using a remote or local wireless link to connect the handheld computing device to a computer located in the store, a computer associated with the store, a remote server that is in communication with the store's computer system, or using any other suitable approach. As an example, the order may be placed to the store's computer system (e.g., a computer system



such as one based on a computer such as computer 38 of FIG. 2, one of the computers 184 of FIGS. 13 and 14, one of the computers 208 of FIG. 15, etc.) over a local RF wireless link while the user is in the store.

Detailed Description Text - DETX (353):

Information on the user's location may be provided with the order or used to process the order. For example, orders of this type may be allowed only from in-store customers or customers in the vicinity of the store or orders from in-store customers may be given priority over other orders. The store's computer system may determine that the user is located in the store by monitoring a GPS location or using network-based location techniques or by determining that the user is in communication with the store's computer system using a local wireless transmitter/receiver (e.g., a local wireless transmitter/receiver that is located in the store or that is associated with the store).

Detailed Description Text - DETX (354):

The deli ordering feature may be provided by a supermarket shopping assistance service. The shopping assistance service may obtain information on which deli items are available and information on specials and other promotional material using any suitable arrangement. For example, this information may be stored on the store's computer system or may be stored on a remote server, etc.

Detailed Description Text - DETX (355):

The user's order may be handled at the deli counter using any suitable arrangement. As an example, a monitor connected to the store's computer system or otherwise in communication with the shopping assistance service may be used to display the user's order to deli personnel. The order may also be printed out with a printer if desired.

Detailed Description Text - DETX (356):

An illustrative order screen 1086 that may be displayed for deli personnel is shown in FIG. 114. Screen 1086 may contain information on the items ordered by the user, the user's name or order number, information on whether the user is currently located in the store, the time and date of the order, special handling or preparation instructions (e.g., slicing instructions), brand preferences, etc. Deli personnel may use the information on screen 1086 to prepare the user's order. The user's order may then be held for pickup.

Detailed Description Text - DETX (357):

When the order is ready, the deli personnel may select an option such as on-screen option 1088. In response, the store's computer system may generate a notification message for the user to inform the user that the user's order is ready to be picked up. The notification may be sent to the user using any suitable communications path such as a remote or local wireless link. If, for example, the user is in local wireless communications with the store, the

notification may be sent to the handheld computing device over a local RF wireless link using a local transmitter/receiver associated with or located in the store.

**Detailed Description Text - DETX (358):**

Handheld computing device 12 may be used to order products for in-store pickup other than deli products. For example, this approach may be used to order products from an in-store butcher, an in-store florist, and in-store pharmacist, etc. Moreover, this type of arrangement is not limited to supermarket ordering. Products may be ordered in this way in shopping malls, in department stores or other stores, in restaurants, etc.

**Detailed Description Text - DETX (359):**

Illustrative steps involved in using handheld computing device 12 to place product orders for in-store pickup are shown in FIG. 115. At step 1090, handheld computing device 12 or other suitable electronic device such as a shopping-cart-mounted electronic device in the store may be used to provide the user with an opportunity to place an order. For example, on-screen options may be provided for the user that allow the user to specify the items to be picked up. Information such as the user's name or an order number may be used to identify the order.

**Detailed Description Text - DETX (360):**

Financial information may or may not be required to place the order. If financial information is required, the user may be provided with an opportunity to supply credit card or debit card or account information using handheld computing device 12. Such information may be supplied by handheld computing device 12 based on previously stored financial information or may be supplied using on-screen options that are displayed for the user when the information is required.

**Detailed Description Text - DETX (362):**

The order may be placed using a remote or local wireless link between the handheld computing device or other equipment and the store's computer system.

**Detailed Description Text - DETX (363):**

At step 1092, after the user has placed the order, the order may be processed by the store. For example, the store's computer equipment may display a screen containing the user's order. When the order is ready for pickup, the store personnel may direct the store's equipment to send a notification message to the handheld computing device. The notification may be transmitted to the handheld computing device over a remote or local wireless link.

**Detailed Description Text - DETX (364):**

Handheld computing device 12 may be used in an automobile for wireless

financial transactions such as purchasing gasoline from a gas station, paying tolls on highways, paying for parking in parking garages and parking lots, paying for food at drive-through restaurants, etc. As shown in FIG. 116, handheld computing device 12 in automobile 1094 may communicate with a computer 1096 that is located in or associated with a facility 1098 such as a gas station, toll collection facility, parking facility, drive-through restaurant, etc. Handheld computing device 12 may communicate with computer 1096 over a remote or local wireless link. For example, handheld computing device 12 may communicate with computer 1096 over a local IR or RF wireless link. Handheld computing device 12 may transmit financial information to computer 1096 to purchase products or services from facility 1098 in a wireless purchase transaction.

**Detailed Description Text - DETX (366):**

At step 1102, handheld computing device 12 may provide financial information to computer 1096 such as account information, credit or debit card information, or other information that allows computer 1096 to charge the user for the product or service being purchased. Computer 1096 may charge the user using any suitable technique, such as charging the user's credit cards, deducting the financial amount of the transaction from the user's account, etc. The amount of the transaction may be displayed on the display of handheld computing device 12 if desired.

**Detailed Description Text - DETX (367):**

At step 1104, financial records of the payment transactions may be maintained. For example, information on the payment transactions may be maintained in memory in handheld computing device 12 or may be stored remotely (e.g., on a service provider computer or a computer associated with facility 1098, or any other suitable computer). The records may or may not be accessible to the user.

**Detailed Description Text - DETX (368):**

If the records are accessible to the user, an expense report or other financial report may be generated at step 1106, based on the financial information in the records. If desired, purchase transactions with handheld computing device 12 may be classified (e.g., as food, lodging, travel, etc.). Purchase transactions may be classified manually by the user by reviewing the transactions on the screen of handheld computing device 12 and assigning each transaction to an appropriate category. Different files or folders may be established for different groups of transactions. Purchase transactions may also be assigned automatically, based on information on the nature of the transaction (e.g., the name of facility 1098, etc.) that is obtained from facility 1098 during the transaction. Further expense report features and features related to maintaining financial records are described in connection with FIG. 11.

**Detailed Description Text - DETX (369):**

Financial information and records from the wireless purchase transactions

between handheld computing device 12 and computers such as computer 1096 may also be e-mailed using a remote wireless link, etc.

**Detailed Description Text - DETX (370):**

An illustrative screen 1108 that handheld computing device 12 may display for the user when performing an automobile-related wireless financial transaction such as purchasing gasoline from a gas station, paying tolls on highways, paying for parking in parking garages and parking lots, paying for food at drive-through restaurants, etc. is shown in FIG. 118. Screen 1108 may contain a thank you message 1110 and information 1112 on the nature of the financial transaction and the amount of the transaction. An information region 1114 may be provided that contains detailed information on the transaction, general or current information on road or traffic conditions, safe driving tips, etc. The information for regions such as region 1114 may be obtained, for example, from a computer of a traffic news service provider that is in communication with computer 1096 of facility 1098 over a communications network.

**Detailed Description Text - DETX (371):**

Screen 1108 may also contain promotional information such as advertisement 1116. Promotional information such as advertisement 1116 may be interactive. The user may obtain information on products or services or may order products or services by selecting advertisement 1116 and responding to on-screen options that handheld computing device 12 displays in response to the user's selection. Other options 1118 (e.g., expense report options, etc.) may also be provided on screen 1108 if desired. Screen 1108 is merely an illustrative example of the type of screen that handheld computing device 12 may display following a wireless transaction performed from within an automobile. Any suitable screen may be displayed if desired.

**Detailed Description Text - DETX (373):**

Moreover, various system features have been described in the context of systems for shopping malls, department stores, supermarkets, and other types of establishments. In general, the on-screen options and features provided in such systems are illustrative and features described in connection with one type of merchant or establishment may be used with any other suitable type of merchant or establishment if desired.

**Claims Text - CLTX (1):**

1. A method for providing a user at a handheld computing device with a shopping assistance service for an establishment having a plurality of stores, comprising: allowing the handheld computing device to be used to establish a local wireless link with wireless communications equipment associated with the establishment; displaying an on-screen option on the handheld computing device that allows the user to use the handheld computing device to obtain directory information identifying each of the plurality of stores over the local wireless link; monitoring the user's location within the establishment; and displaying promotional material on the handheld computing device based on the user's

location.

**Claims Text - CLTX (3):**

3. The method defined in claim 1 further comprising displaying a map showing the location of at least one of the stores within the establishment.

**Claims Text - CLTX (4):**

4. The method defined in claim 1 further comprising: displaying store category information on the handheld computing device; and displaying promotional information on the handheld computing device that is associated with at least one of the stores, wherein the store category information and the promotional information are displayed on a common screen by the handheld computing device.

**Claims Text - CLTX (5):**

5. A method for providing shopping assistance to a user with a handheld computing device in a store in an establishment having a plurality of stores, comprising: using the handheld computing device in the store to establish a wireless link with a computer associated with the store; displaying an on-screen option on the handheld computing device that provides the user with an opportunity to place a request for a product to be picked up and paid for in the store; allowing the handheld computing device to be used to establish a local wireless link with wireless communications equipment associated with the establishment; displaying an on-screen option on the handheld computing device that allows the user to use the handheld computing device to obtain directory information identifying each of the plurality of stores over the local wireless link; monitoring the user's location within the establishment; and displaying promotional material on the handheld computing device based on the user's location.

**Claims Text - CLTX (6):**

6. The method defined in claim 5 wherein the on-screen option allows the user to place a request for deli products at a deli within the store.

**Claims Text - CLTX (7):**

7. The method defined in claim 5 further comprising displaying information on the handheld computing device on the locations within the store of various products offered for sale in the store.

**Claims Text - CLTX (8):**

8. The method defined in claim 5 further comprising: using a local radio-frequency wireless link to communicate between the handheld computing device and the computer associated with the store; and displaying promotional information related to products offered for sale in the store on the handheld computing device.

**Claims Text - CLTX (9):**

9. The method defined in claim 5 further comprising: displaying an interactive advertisement related to a product offered for sale in the store on the handheld computing device; and providing the user with a financial benefit at checkout if the user responds to the interactive advertisement.

**Claims Text - CLTX (11):**

11. A method for using a mobile electronic device to provide shopping assistance to a customer who is shopping in a retail store in an establishment having a plurality of stores, comprising: using the mobile electronic device to establish a wireless link with a computer; using the mobile electronic device in the retail store to display an on-screen option that allows the customer to obtain information from the computer on where products are located in the store; allowing the handheld computing device to be used to establish a local wireless link with wireless communications equipment associated with the establishment; displaying an on-screen option on the handheld computing device that allows the user to use the handheld computing device to obtain directory information identifying each of the plurality of stores over the local wireless link; monitoring the user's location within the establishment; and displaying promotional material on the handheld computing device based on the user's location.

**Claims Text - CLTX (13):**

13. The method defined in claim 11 further comprising using the mobile electronic device to display an on-screen option that allows the user to search for products within the store using the computer.

**Claims Text - CLTX (14):**

14. The method defined in claim 11 wherein the mobile electronic device is a handheld computer, the method further comprising: allowing the user to use the handheld computer to input a product name; and displaying information on the product from the computer based on the product name; and displaying interactive advertisements for products in the store on the handheld computer.

**Claims Text - CLTX (15):**

15. The method defined in claim 11 further comprising: using the mobile electronic device to wirelessly identify a product in the store; and adding the identified product to a list with the mobile electronic device.

**Claims Text - CLTX (16):**

16. The method defined in claim 11 further comprising using the mobile electronic device to display a video to the user in the store.

**Claims Text - CLTX (17):**

17. The method defined in claim 11 further comprising: allowing the user to

create a shopping list using an in-home electronic device; and using the mobile electronic device to access the shopping list in the store.

Claims Text - CLTX (18):

18. A method for providing shopping assistance to a user in a store with a mobile electronic device in an establishment having a plurality of stores, comprising: using the mobile electronic device to establish a local wireless link with a computer; displaying a screen on the mobile electronic device that contains promotional information from the computer on products offered for sale in the store; allowing the handheld computing device to be used to establish a local wireless link with wireless communications equipment associated with the establishment; displaying an on-screen option on the handheld computing device that allows the user to use the handheld computing device to obtain directory information identifying each of the plurality of stores over the local wireless link; monitoring the user's location within the establishment; and displaying promotional material on the handheld computing device based on the user's location.

Claims Text - CLTX (20):

20. The method defined in claim 18 wherein the promotional information is an interactive offer related to a product in the store, the method further comprising: allowing the user to accept the offer using the mobile electronic device; and providing the user with a financial benefit related to the offer at checkout.

Claims Text - CLTX (21):

21. The method defined in claim 18 further comprising: monitoring the user's location within the store; and using the mobile electronic device to display information to the user based on the user's location within the store.

Other Reference Publication - OREF (1):

"Let the directory do the walking: electronic footsteps lead shoppers through Del Amo mall", Chain Store Age Executive with Shopping Center Age, V. 65 No. 11, p. 116(1), Nov. 1989.\*

Other Reference Publication - OREF (4):

"Shop Till You Drop With Your Wireless Phone or PDA," ZDNET PC Magazine, as printed from the Internet on Jan. 31, 2000.

Other Reference Publication - OREF (9):

"Palm Point of Sale System Offered," Internet.com Corp., dated Oct. 5, 1999.

Other Reference Publication - OREF (13):

"Sony's Digital Path Leads to Record Stores," by Beth Lipton Krigel, CNET News.com, dated Jun. 9, 1999.

ways in which to save the financial transaction information and illustrative examples of suitable applications to which the information may be provided.

Detailed Description Text - DETX (68):

If wireless transmitter/receiver 182 supports IR communications, handheld computing device 12 may communicate with merchant 178 over an IR communications link. This type of link may be used, for example, to receive materials from a kiosk associated with the merchant 178 or other entity. IR links may also be used for local purchase transactions with wireless cash registers or the like. If wireless transmitter/receiver 182 supports local RF wireless communications, handheld computing device 12 may communicate with merchant 178 over a local RF wireless link. Such a link may be used, for example, to push promotional materials or other information to a user's handheld computing device or to consummate a wireless purchase transaction or to receive a shopping list or directory from computer 184. If wireless transmitter/receiver 182 supports remote wireless communications, handheld computing device 12 may communicate with merchant 178 or other entity over a remote wireless link. A remote link may be used to obtain a shopping list from a remote server, to retrieve a directory, to retrieve product information from a remote database, to access a remote web site containing product information or personal information, to access a service implemented at a remote service provider, etc. These are merely illustrative examples.

*other entity*  
*Service Provider*

Detailed Description Text - DETX (71):

A user may also use a handheld computing device 12 to access service provider 190 over communications network 192 using remote wireless transmitter/receiver 194. For example, a cellular telephone base station may have a remote wireless transmitter/receiver 194 with which handheld computing device 12 may communicate over remote wireless link 196.

*Service Provider*

Detailed Description Text - DETX (75):

Local wireless transmitter/receivers may not have sufficient range to cover an entire mall or large store. As shown in FIG. 15, a network of local wireless transmitter/receivers 206 may be used to provide local wireless communications coverage for the entire establishment. Transmitter/receivers 206 may form a wireless local area network. The spacing of the local wireless transmitter/receivers 206 depends on the size of the establishment being covered and the range of each transmitter/receiver. Local communications equipment such as local wireless transmitter/receivers 206 may serve as a local access point to communications networks such as the Internet by connecting local wireless transmitter/receivers 206 to the Internet or other such communications network.

Detailed Description Text - DETX (77):

Kiosks such as kiosk 216 may interact with handheld computing device 12. Handheld computing device 12 may have a computer 218 and an associated local wireless transmitter/receiver 220. Kiosk 216 may provide information over a local wireless link using local wireless transmitter/receiver 220. For



**Brief Summary Text - BSTX (23):**

The shopping assistance service may display information on specials. The user may search for desired products, services, and stores at the mall. Various types of messages may be provided to the handheld computing device. For example, a proximity message may be provided. The user may be alerted when a message is received from a nearby merchant. The user may also be alerted to the availability of a special. Messages regarding specials may include interactive features. Messages may be provided to the user to notify the user or to remind the user of certain events. The user may adjust alert settings for various message types.

**Brief Summary Text - BSTX (28):**

The supermarket shopping assistance service may also be used to place orders for products. The products may be delivered to the user from an order fulfillment facility or may be picked up by the user in the supermarket. As an example, the user may use the handheld computing device to place a deli order to be picked up in the store. The order may be placed over a local or remote wireless link. The deli may send a notification to the user over the remote or local wireless link when the order is ready to be picked up. This arrangement may also be used in other retail environments. For example, orders may be placed and notifications sent at shopping malls, department stores, airports, etc.

**Brief Summary Text - BSTX (29):**

A department store shopping assistance service may be provided using the handheld computing device. A directory screen may be displayed by such a department store shopping assistance service. The service may allow a user to use a handheld computing device to request sales assistance. The handheld computing device may be used to provide access to a gift registry service.

**Brief Summary Text - BSTX (32):**

The handheld computing device may be used in an automobile for financial transactions such as purchasing gasoline, paying tolls, paying for parking, purchasing food from drive-through restaurants, etc. Records may be maintained of these transactions and expense reports automatically generated based on the records.

**Drawing Description Text - DRTX (9):**

FIG. 7 is a flow chart of illustrative steps involved in financial transaction and communications functions involving the handheld computing device in accordance with the present invention.

**Drawing Description Text - DRTX (19):**

FIG. 17 is a top view of a store showing the wireless coverage provided by multiple wireless transmitter/receivers in accordance with the present invention.